

A fiber optic signal separator for separating and amplifying signal components from multiplexed signal using a three port optical circulator, a grating and integral signal amplification components is described. Another example embodiment of the signal separator uses a four port optical circulator, one or more grating and integral optical amplification components. A signal multiplexer using a three port optical circulator, a grating and integral signal amplification components is described. Another example embodiment of the signal multiplexer uses a four port optical circulator, one or more gratings and optical amplification components for integral amplification of the signal.